

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
14 July 2005 (14.07.2005)

PCT

(10) International Publication Number  
**WO 2005/063358 A2**

(51) International Patent Classification<sup>7</sup>: **B01D 35/027**,  
35/153, 35/147

(74) Agent: **BRUESS, Steven, C.**; Merchant & Gould P.C.,  
P.O. Box 2903, Minneapolis, MN 55402-0903 (US).

(21) International Application Number:  
PCT/US2004/043227

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(22) International Filing Date:  
21 December 2004 (21.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/532,761 22 December 2003 (22.12.2003) US

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **SCHIAVON, Angelo** [IT/IT]; Via Pastrengo, 4/A, I-46025 Possio Rusco (IT). **CANTONI, Mauro** [IT/IT]; Vicolo Ducale, 11, I-46100 Mantova (IT). **ZANETTIN, Andrey** [IT/IT]; Via Amendola, 8, I-46035 Ostiglia (IT). **FORMICA, Claudio** [IT/IT]; F. Cavallotti, 24, I-46030 Pomponesco (IT).

Published:

— *without international search report and to be republished upon receipt of that report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: LIQUID FILTER ASSEMBLY; AND, METHODS

(57) Abstract: A liquid filter assembly is provided. The preferred assembly includes a serviceable filter cartridge having a primary filter section and a secondary or bypass filter section. The preferred assembly includes a bypass valve arrangement and a suction filter arrangement. The suction filter arrangement preferably includes a dimensionally biased valve arrangement, preferably one which is devoid of a helical coiled spring, to control flow through the suction filter. A flow/pressure regulation valve, to allow flow from an interior of the assembly to a reservoir if needed, is preferably provided. Preferred serviceable filter cartridges are shown.



WO 2005/063358 A2